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Improvements to new security screens and doors

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ABSTRACT

- 5 A method to fix and retain woven stainless steel security
mesh to new extruded frames having a inner recess that
measures 22mm deep by 7.5mm wide. The woven stainless steel
wire mesh having bent edges perpendicular to the common plane
and a plurality of co-acting clamping components which hold and
lock the woven stainless steel security mesh inside the inner recess of
10 the extruded aluminium frame.

CLAIMS

1. A security screen or door including:
5 a rigid frame comprising elongate frame members, wherein
each frame member comprising a rectangular hollow section
and channel section abutting said hollow section, a corner
stake engaging respective frame members in each corner.
10 A woven stainless steel security mesh with perpendicular bent
edges on the periphery of the screen mesh that is inserted into
the channel section with a retainer section being pressed into
place on top of the security mesh and abutting the inside
perpendicular bent edge of said screen and butting the inside
edge of the inwardly protruding extrusion on the inside edge of
15 the frame forming a secure lock thereby securing the security
mesh inside the channel of the outer frame and effectively
holding the retainer and mesh firmly to the frame.

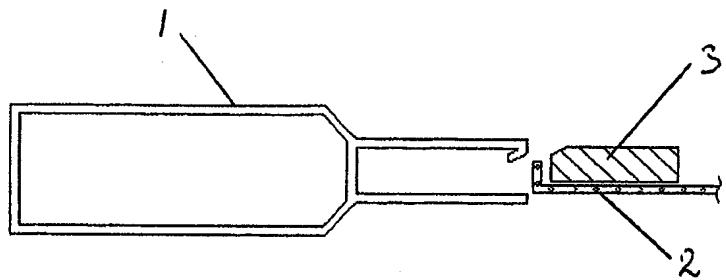


FIG.2

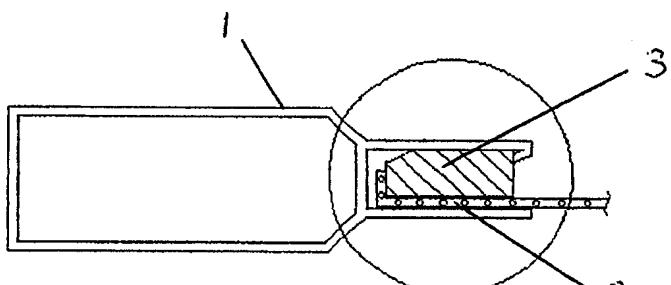


FIG.3

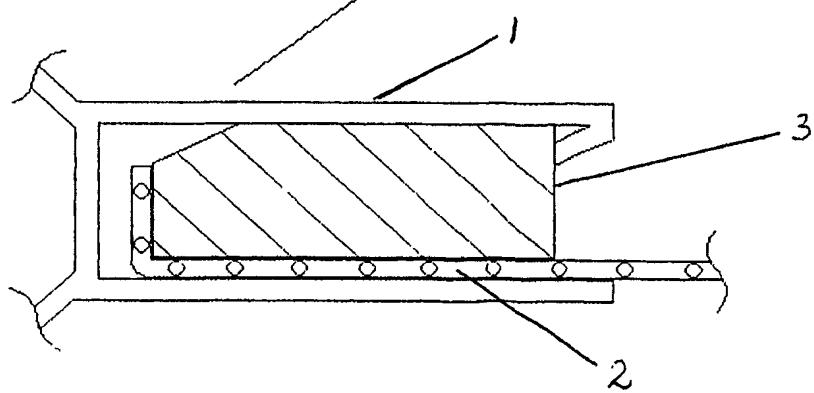


FIG.4

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TITLE

"Improvements To New Security Screens and Doors"

FIELD OF INVENTION

5

THIS INVENTION relates to improvements to the security screening of new security doors and windows, useful for the function of being both a insect and security screen for windows and doorways alike.

10

BACKGROUND OF INVENTION

Security grilles and screens are often used to protect both business and private premises from unwanted intruders. In general the grilles used range from straight steel bars welded to a steel frame and bolted into a window opening or hinge mounted in a doorway to aluminium extruded frames with a wide variety of aluminium inserts fitted into the extruded frames then fixed or hinged into the opening being protected.

These measures may offer some security, however due to the fact that in most cases the security grille or insert provides ample room to allow access for a bolt cutter or hacksaw to be used inside the inserted area of the security screen to remove the necessary portion of the grille and allow an intruder entry. These types of grilles are mainly used for Industrial or commercial premises where the sometimes unsightly appearance is not an important issue.

In private premises however a combination of insect screening, strong security, general appearance and maintenance is the most important criteria as well as the consideration of cost. As previously stated, there are various types of security screens

and doors that are in use giving only limited protection. The general type of security screen and security door fitted to the average home comprises of three main parts, the first being the frame an extruded aluminium frame section with a slot on the inside edge of the frame to take the second part the grille insert.

This grille insert is often made from expanded aluminium wide grade mesh or a cast aluminium grille with a variety of ornamental designs. The third part is the insect mesh generally made from fine fibreglass strands or coated aluminium strands fitted after the security grille is fitted to the frame.

The frame being the most secure part of the entire assembly.

SUMMARY OF THE INVENTION

- 5 It is an object of the invention to provide an improvement in the manufacturing process of new security screens and doors to overcome at least one or more of the problems associated as fore mentioned.
- 10 Also it will become apparent that the invention will create considerable cost savings in the manufacturing process of new security screens and doors in current use.
- 15 The invention relates to a method of manufacture and a process of fixing woven stainless steel wire insect resistant security mesh to new and existing security grilles and doors.
- 20 According to one aspect of the invention there is provided a woven stainless steel wire insect resistant security mesh screen including,
- 25 A frame comprising elongate frame members with each having a channel section engaging a respective corner stake in each end thereof,
- 30 A frame section that has a inside slot or extruded section measuring 22mm deep by 7.5mm in width with a inwardly tapering abutment protrusion on one internal front edge of the extruded section continuos on the internal edge of the said frame,
- 35 A woven stainless steel wire insect resistant security mesh screen infilling the said frame opening,
- 40 A woven stainless steel wire insect resistant security mesh screen with folded edges bent at 90 degrees that fits into the internal slot of the said frame, extending along the length of each respective frame member,
- 45 A Retainer or lock Plate that fits inside the said internal slot of the frame, extending along the length of each respective frame member,
- 50 A plurality of clamping members co-acting with respective fastening means to hold or lock the co-acting clamping members in situate,
- 55 All said co-acting clamping members extend along the

length of a respective frame member,

5 Preferably all of the said frame members have at least three co-acting said clamping members in said internal slot,

Frame members may be roll formed or press formed steel lengths or extruded aluminium lengths,

Preferably the frame members shall be extruded aluminium lengths,

10 Suitably the said retainer or lock plate be of a non-corrosive material compressible with insulating characteristics,

Preferably the said retainer or lock plate be vinyl or (PVC) Poly-vinyl-chloride possessing the correct compression and insulating characteristics to firmly secure the retainer plate to the extruded aluminium frame and firmly secure the security mesh inside the extruded aluminium section.

Suitably the said mesh be expanded stainless steel mesh or woven stainless steel wire mesh,

20 Preferably the said mesh be woven stainless steel insect resistant security mesh with bent edges perpendicular to the common plane with the perpendicular portions facing toward the inside of the premise being screened,

BRIEF DESCRIPTION OF DRAWINGS

25 The invention will now be shown in various views to explain the fixing method employed in more detail,

FIG. 1 is a perspective view typical of a security door or security screen, a cross sectional view through A-A, a description of relevant components,

30 FIG. 2 is a dismantled view of section A-A of the extruded aluminium frame section with the top of the drawing being the inside of a door or screen,

FIG. 3 is a assembled cross section A-A as shown in FIG. 1 / 2,

35 FIG. 4 is an exploded view of FIG. 3 showing the fore mentioned internal slot as well as the security wire and retainer plate,

FIG. 5 is a sectional view of extrusion,

FIG. 6 is the retainer or lock section,

FIG. 7 is the woven stainless steel insect resistant mesh

5 showing the 90 degree bend on the edge of the mesh,

FIG. 8 is a exploded view of a corner assembly with all relevant components set out showing the fitment direction as well as fasteners employed to fix the frame to corner stake,

10 FIG. 9 is a view of the inside of the security door or screen,

FIG. 10 is a view of the outside of the security door or screen as seen from the outside or public side showing no fasteners, only a clean frame with the inserted security screen mesh,

15 FIG. 11 is a sectional view of a security door with the top of the drawing being the inside of the door,

FIG. 12 is a sectional view of a security window screen extrusion with the same 22mm deep by 7.5mm wide section showing a smaller outside of the extrusion suitable for window fitment,

20 FIG. 13 is a perspective view of extruded window frame section,

FIG. 14 is a plan view of the extruded window frame section,

25 FIG. 15 is a side view of the extruded window frame section showing the inside or slot side of the extrusion,

FIG. 16 is a end view of two opposing extrusions with the top of the drawing representing the inside of a fitted dismantled screen in a window frame

DETAILED DESCRIPTION

30 With reference to FIG. 1 there is illustrated a security door or security screen having a frame comprised of elongated members (1) with corner stakes secured by (4) Fasteners, pop rivets or self tapping screws, a woven stainless steel security mesh (2)

35 Page 2/7 shows FIG. 2 a cross section of the extruded aluminium frame and wire assembly shown dismantled as in section A-A in FIG. 1, FIG. 3 is the assembled frame 1 wire 2 and retainer or lock plate 3 in assembled form FIG. 4 shows an exploded view of FIG. 2/3 with retainer or lock plate pressed in home place on top of mesh 2 and butting against the inner edge of said mesh 2 as
40 well as abutting the inside edge of the tapered front protrusion of the inside edge of the frame 1 compressing said mesh 2 against the back perpendicular edge of the retainer, as well as compressing the mesh 2

in the horizontal and vertical planes, securing the entire assembly, performing a reasonable fitment to retain the mesh 2 to frame 1.

5

As shown in FIG. 4 the assembly of mesh 2, + retainer 3 inside frame recess 1, provides a firm or transition fit owing to the total thickness of mesh 2+ retainer 3 being greater than the extruded section or recess by between 1 to 10%.

10

The compression of the retainer plate 3 against the mesh 2 and internal recess of frame 1 helps provide a weather resistant seal around the recess to help prevent corrosion from occurring,

15

The stainless steel security mesh shown in FIG. 4 item 2 is precision cut and bent at 90 degrees with the retainer plate 3 being used to both tension the mesh 2 by butting against the perpendicular portion of the mesh as well as providing compression on the woven mesh surface and locking the mesh inside the extruded frame when the retainer plate is pressed past the front tapered inward protrusion of the inside frame recess making a compressed double butt lock.

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and channel section abutting said hollow section, a corner
stake engaging respective frame members in each corner.
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the channel section with a retainer section being pressed into
place on top of the security mesh and abutting the inside
perpendicular bent edge of said screen and butting the inside
edge of the inwardly protruding extrusion on the inside edge of
15 the frame forming a secure lock thereby securing the security
mesh inside the channel of the outer frame and effectively
holding the retainer and mesh firmly to the frame.

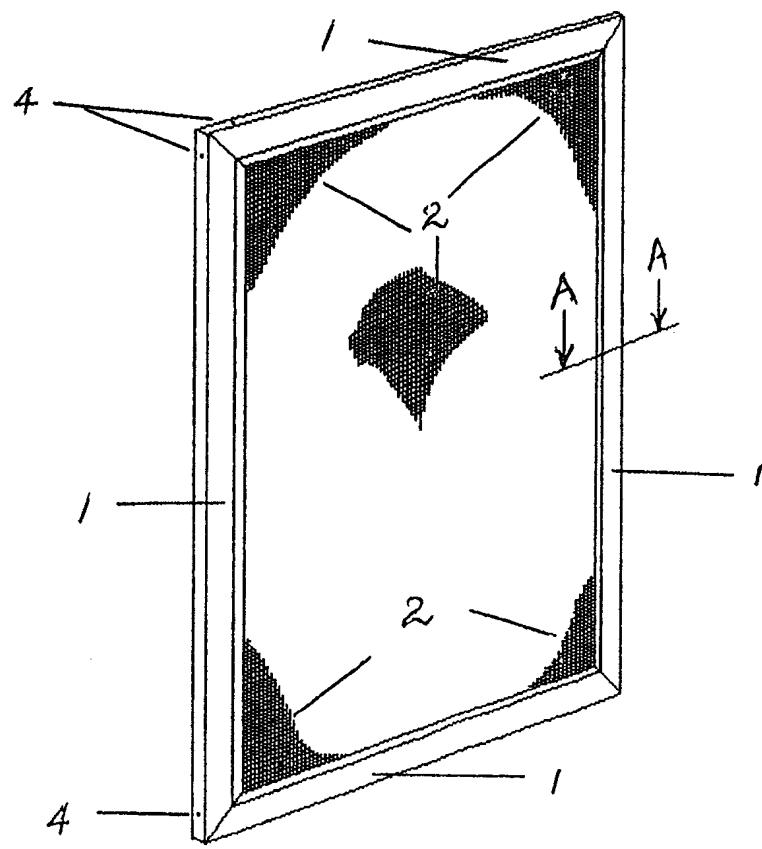


FIG.1

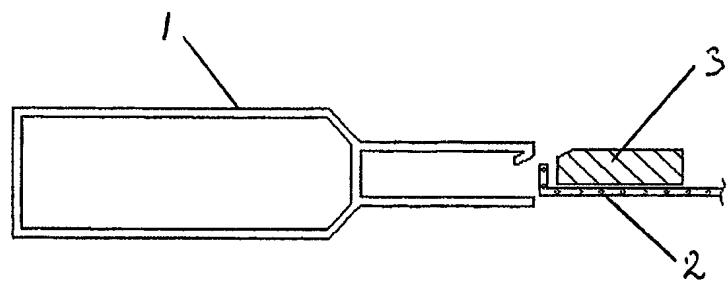


FIG.2

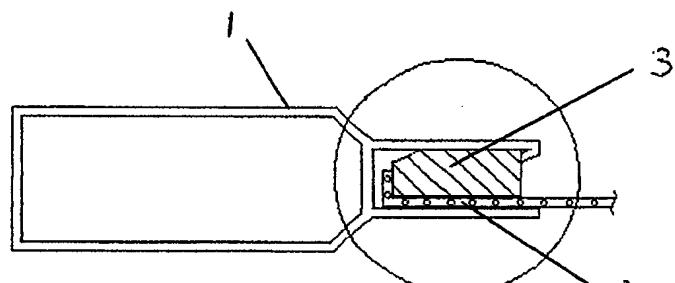


FIG.3

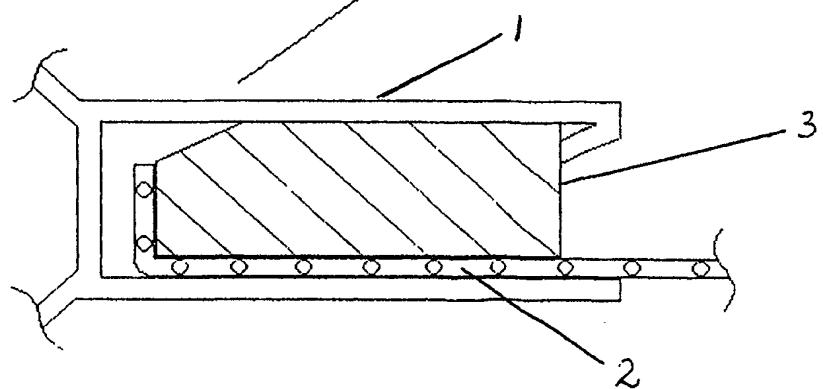


FIG.4

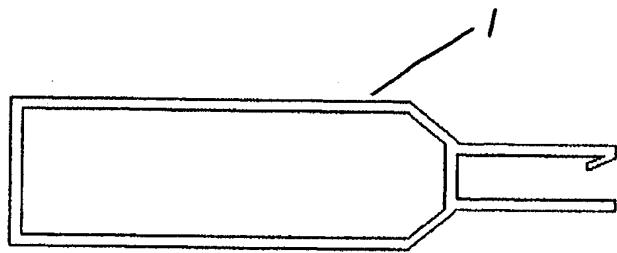


FIG.5

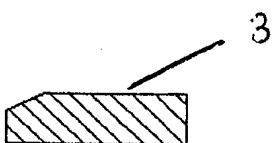


FIG.6

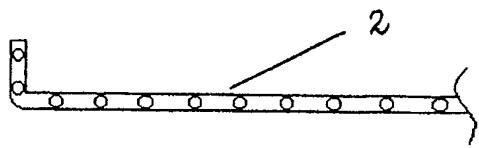
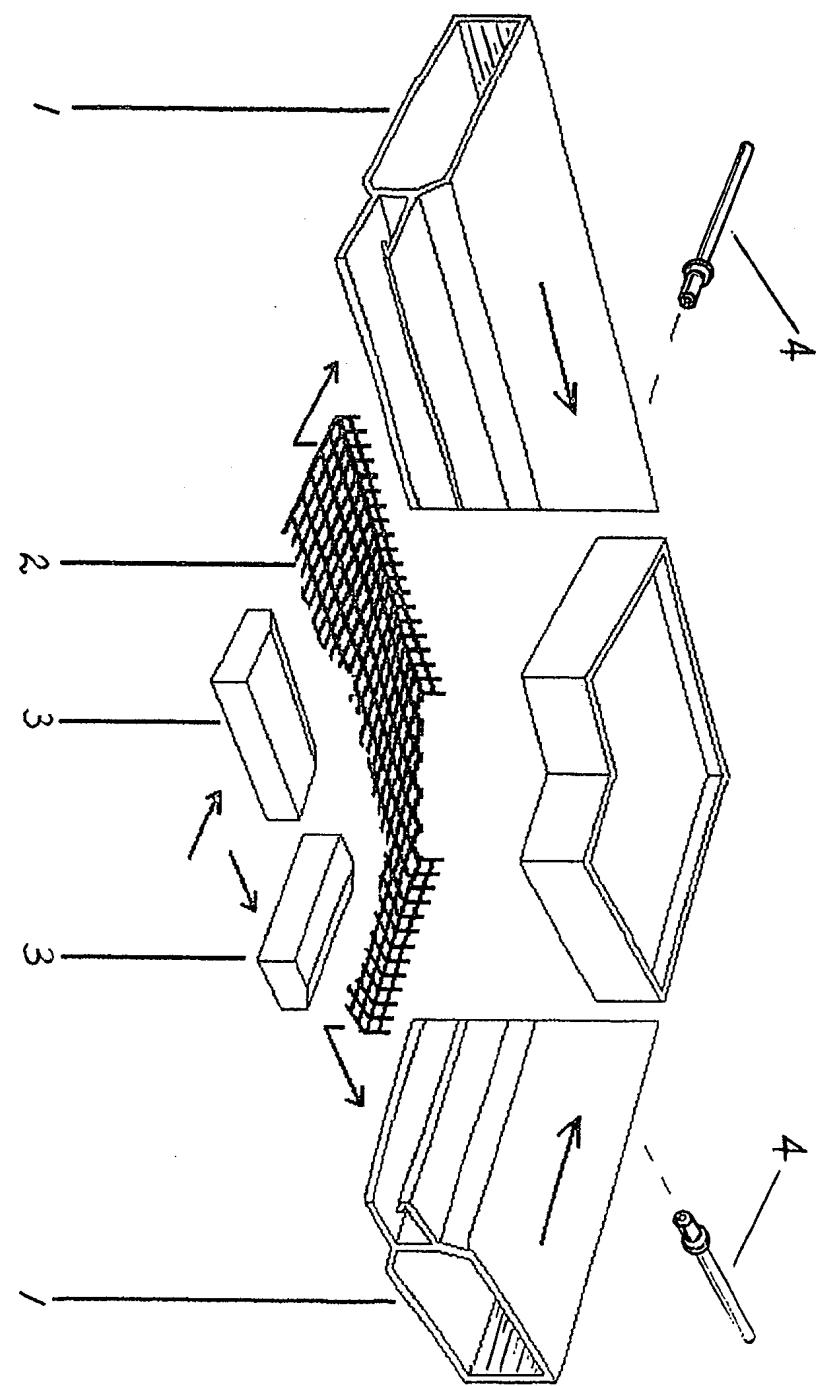


FIG.7

FIG. 8



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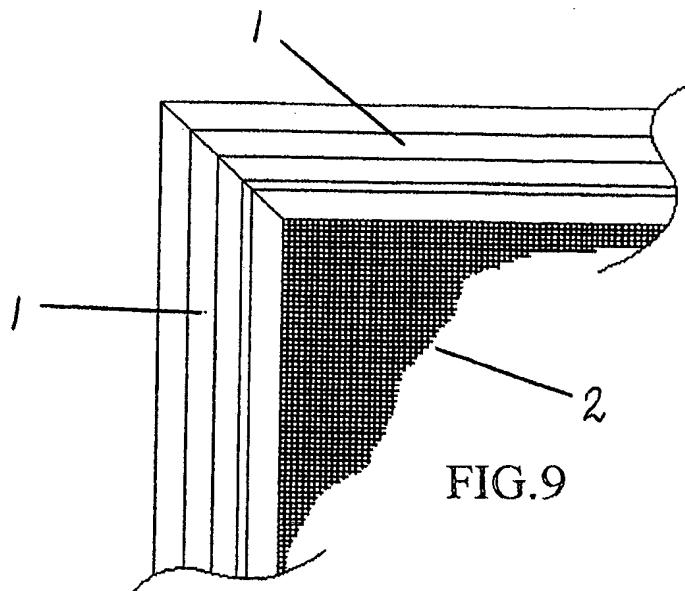
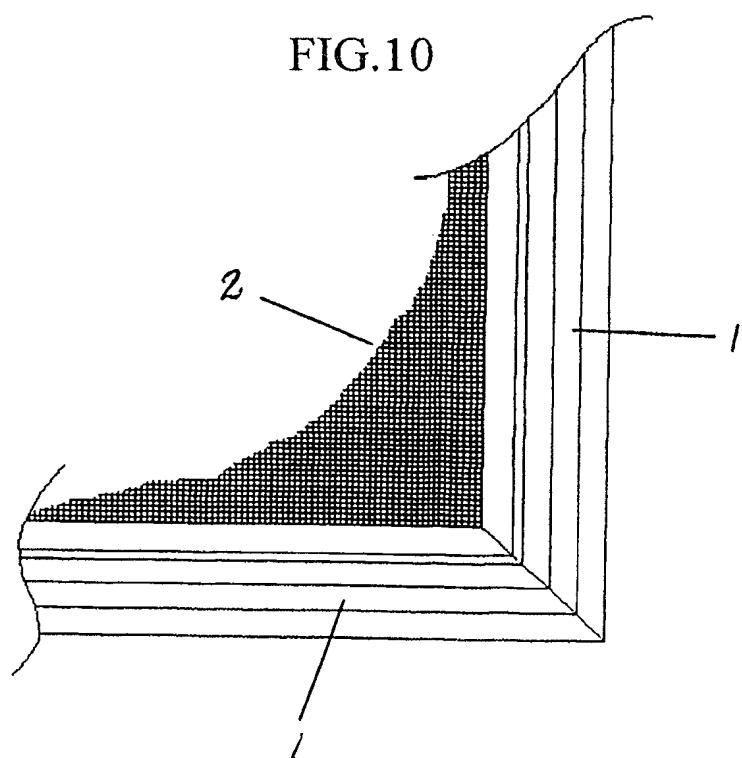


FIG. 10



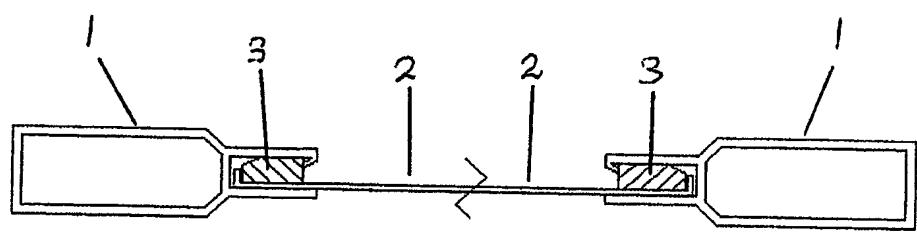


FIG.11

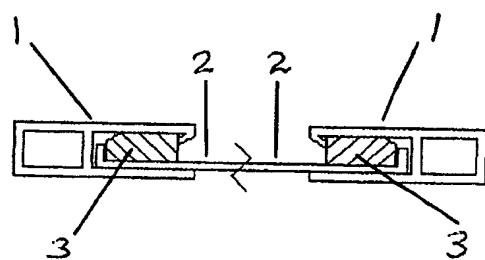


FIG.12

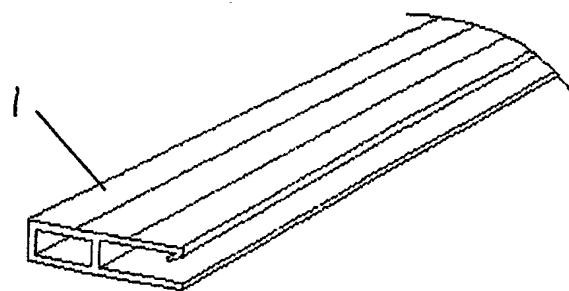


FIG.13

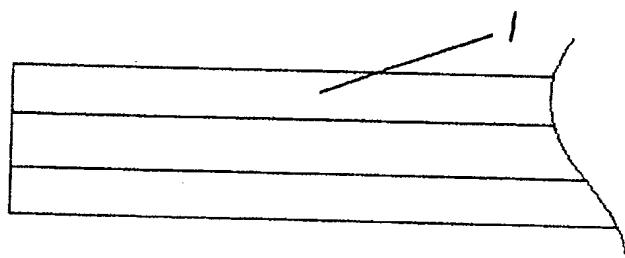


FIG.14

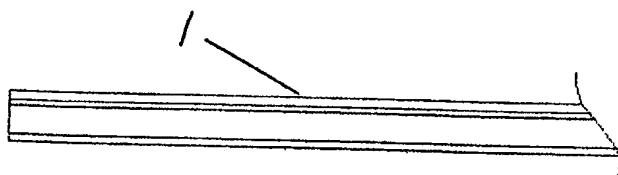


FIG.15

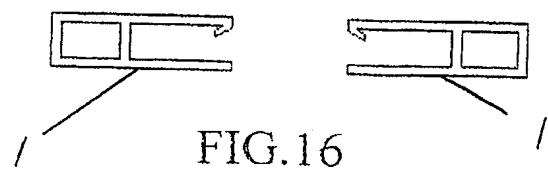


FIG.16